WHAT IS CLAIMED IS:

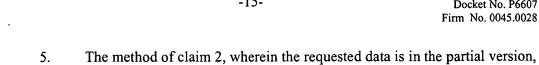1   1.   A method for managing files in a file system, wherein an application

2   program accesses files in the file system, comprising:

3   providing a plurality of files in a primary storage used by the application program;

4   applying a criteria to determine files to release in the primary storage that have

5   been copied to a secondary storage;

6   receiving a request for data from the application program in one file that was

7   released and resides on the secondary storage;

8   reading the data from the file in the secondary storage into a memory accessible to

9   the application program; and

10   providing data from the file in the memory to the application program before the

11   entire file has been read from the secondary storage into the memory.

1   2.   The method of claim 1, further comprising:

2   storing in the primary storage a partial version of at least one released file,

3   wherein the partial version includes a portion of the data in at least one released file.

1   3.   The method of claim 2, wherein the partial version of the file comprises a

2   first number of bytes of the released file that is less than all the bytes in the file, further

3   comprising:

4   receiving user input indicating the first number of bytes included in the partial

5   version of the file.

1   4.   The method of claim 2, wherein an attribute is provided for each file

2   indicating whether the partial version of the file is maintained in the primary storage after

3   the file is released, wherein the partial version is only maintained in the primary storage

4   for those released files having the attribute indicating that the partial version is to be

5   maintained.

1   5.   The method of claim 2, wherein the requested data is in the partial version,

2 further comprising:

3   reading the data from the partial version of the file in the primary storage into the
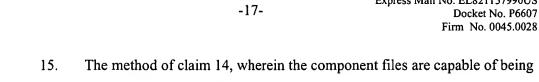
4 memory to make available to the application program.

1   6.   The method of claim 5, further comprising:

2   receiving a further request from the application program for data in the file that is

3 not included in the partial version of the file; and

4   determining a location in the file in the secondary storage of the further requested

5 data, wherein reading the data from the file in the secondary storage comprises reading

6 data from the determined location in the file in the secondary storage into the memory to

7 make available to the application program.

1   7.   The method of claim 6 wherein data is read from the file in the secondary

2 storage in a fixed byte length window, and wherein reading the further requested data

3 from the determined location in the file in the secondary storage further comprises:

4   reading enough data to fill the fixed length byte window by reading data from the

5 partial version and the further requested data read from the determined location in the

6 secondary storage, wherein the window of the data is transferred to the memory.

1   8.   The method of claim 1, wherein data is read from the file in the secondary

2 storage in a fixed byte length window.

1   9.   The method of claim 8, wherein multiple windows of data are read from

2 the file in the secondary storage into the memory in response to the data request.

1   10.   The method of claim 8, further comprising:

2   receiving a request for data from the file that follows the data transferred into the

3   memory; and

4   reading at least one window of further data having the fixed byte length from the

5   file in the secondary storage into the memory to make available to the application

6   program.

1   11.   The method of claim 8, wherein reading the data into the window further

2   comprises:

3   storing the data read into the window in the memory; and

4   making the data from the window read into the memory available to the

5   application program before the entire window of data is read into the memory.

1   12.   The method of claim 8, further comprising:

2   receiving user input indicating a size of the fixed byte length of the window.

1   13.   The method of claim 1, wherein a stage attribute is associated with each

2   file indicating whether to stage the file transferred from the secondary storage to the

3   memory into the primary storage, comprising:

4   staging data to the primary storage from the memory that was transferred from the

5   secondary storage only if the stage attribute indicates that data from the file is to be

6   staged.

1   14.   The method of claim 1, wherein the files include component files of

2   groups that are accessed by the application program, further comprising:

3   storing in the primary storage a partial version of each released component file

4   included in one of the groups accessed by the application program, wherein the partial

5   version includes a portion of the released component file.

1   15.   The method of claim 14, wherein the component files are capable of being

2   stored in both the primary and secondary storages.

1   16.   The method of claim 14, wherein component files capable of being

2   released and replaced by the partial version are included in groups that are open to the

3   application program.

1   17.   The method of claim 14, wherein the application program comprises a

2   database program and wherein the groups of component files comprise tablespaces that

3   the database program has opened, and wherein the component files of one opened

4   tablespace are eligible for release according to the criteria.

1   18.   The method of claim 17, wherein at least one component file of one

2   tablespace is stored in the primary storage and the partial version of at least one released

3   component file of the tablespace is stored in the primary storage.

1   19.   A system for managing files in a file system, wherein an application

2   program accesses files in the file system, comprising:

3   a primary storage including a plurality of files used by the application program;

4   a secondary storage maintaining copies of files in the primary storage;

5   a computer readable medium accessible to the application program;

6   means for applying a criteria to determine files to release in the primary storage

7   that have been copied to the secondary storage;

8   means for receiving a request for data from the application program in one file

9   that was released and resides on the secondary storage;

10   means for reading the data from the file in the secondary storage into the computer

11   readable medium accessible to the application program; and

12   means for providing data from the file in the computer readable medium to the

13   application program before the entire file has been read from the secondary storage into

14   the computer readable medium.

1   20.   The system of claim 19, further comprising:

2   means for storing in the primary storage a partial version of at least one released

3   file, wherein the partial version includes a portion of the data in at least one released file.

1   21.   The system of claim 20, wherein the partial version of the file comprises a

2   first number of bytes of the released file that is less than all the bytes in the file, further

3   comprising:

4   means for receiving user input indicating the first number of bytes included in the

5   partial version of the file.

1   22.   The system of claim 20, wherein an attribute is provided for each file

2   indicating whether the partial version of the file is maintained in the primary storage after

3   the file is released, wherein the partial version is only maintained in the primary storage

4   for those released files having the attribute indicating that the partial version is to be

5   maintained.

1   23.   The system of claim 20, wherein the requested data is in the partial

2   version, further comprising:

3   means for reading the data from the partial version of the file in the primary

4   storage into the computer readable medium to make available to the application program.

1   24.   The system of claim 23, further comprising:

2   means for receiving a further request from the application program for data in the

3   file that is not included in the partial version of the file; and

4   means for determining a location in the file in the secondary storage of the further

5   requested data, wherein the means for reading the data from the file in the secondary

6   storage reads data from the determined location in the file in the secondary storage into

7   the computer readable medium to make available to the application program.

1   25.   The system of claim 24, wherein data is read from the file in the secondary

2   storage in a fixed byte length window, and wherein the means for reading the further

3   requested data from the determined location in the file in the secondary storage further

4   performs:

5   reading enough data to fill the fixed length byte window by reading data from the

6   partial version and the further requested data read from the determined location in the

7   secondary storage, wherein the window of the data is transferred to the computer readable

8   medium.

1   26.   The system of claim 19, wherein data is read from the file in the secondary

2   storage in a fixed byte length window.

1   27.   The system of claim 26, wherein multiple windows of data are read from

2   the file in the secondary storage into the computer readable medium in response to the

3   data request.

1   28.   The system of claim 26, further comprising:

2   means for receiving a request for data from the file that follows the data

3   transferred into the computer readable medium; and

4   means for reading at least one window of further data having the fixed byte length

5   from the file in the secondary storage into the computer readable medium to make

6   available to the application program.

1   29.   The system of claim 26, wherein the means for reading the data into the

2   window further performs:

3   storing the data read into the window in the computer readable medium; and

4   making the data from the window read into the computer readable medium

5   available to the application program before the entire window of data is read into the

6   computer readable medium.

1   30.   The system of claim 26, further comprising:

2   means for receiving user input indicating a size of the fixed byte length of the

3   window.

1   31.   The system of claim 19, wherein a stage attribute is associated with each

2   file indicating whether to stage the file transferred from the secondary storage to the

3   computer readable medium into the primary storage, further comprising:

4   means for staging data to the primary storage from the computer readable medium

5   that was transferred from the secondary storage only if the stage attribute indicates that

6   data from the file is to be staged.

1   32.   The system of claim 19, wherein the files include component files of

2   groups that are accessed by the application program, further comprising:

3   means for storing in the primary storage a partial version of each released

4   component file included in one of the groups accessed by the application program,

5   wherein the partial version includes a portion of the released component file.

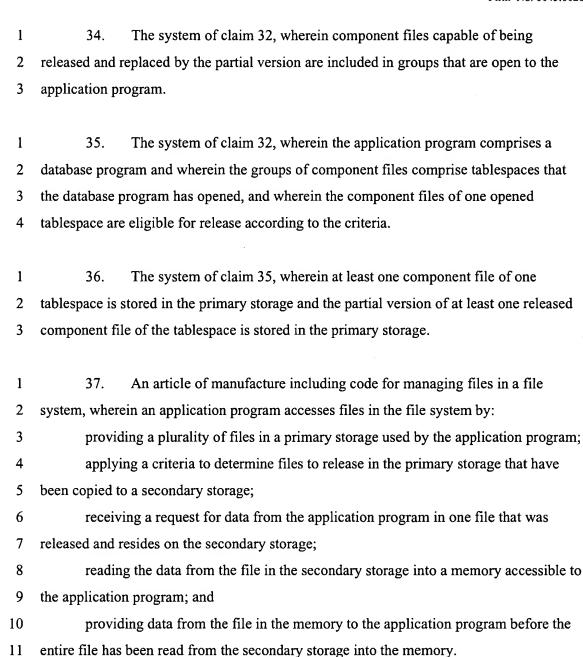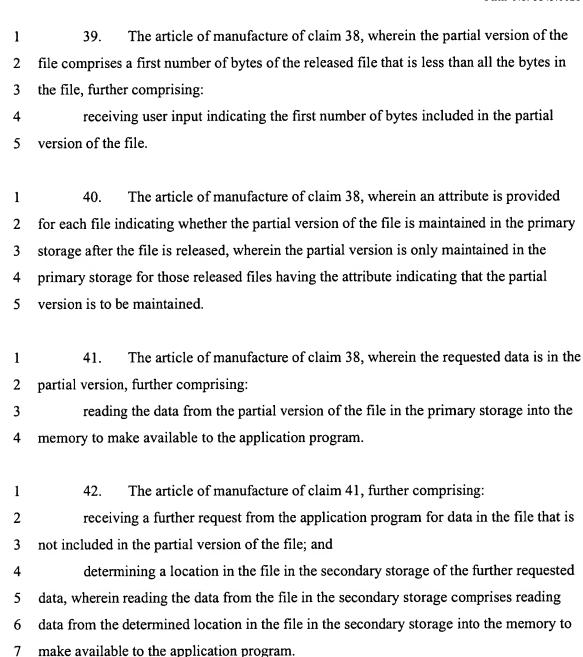1   33.   The system of claim 32, wherein the component files are capable of being

2   stored in both the primary and secondary storages.

1   34.   The system of claim 32, wherein component files capable of being

2 released and replaced by the partial version are included in groups that are open to the

3 application program.

1   35.   The system of claim 32, wherein the application program comprises a

2 database program and wherein the groups of component files comprise tablespaces that

3 the database program has opened, and wherein the component files of one opened

4 tablespace are eligible for release according to the criteria.

1   36.   The system of claim 35, wherein at least one component file of one

2 tablespace is stored in the primary storage and the partial version of at least one released

3 component file of the tablespace is stored in the primary storage.

1   37.   An article of manufacture including code for managing files in a file

2 system, wherein an application program accesses files in the file system by:

3   providing a plurality of files in a primary storage used by the application program;

4   applying a criteria to determine files to release in the primary storage that have

5 been copied to a secondary storage;

6   receiving a request for data from the application program in one file that was

7 released and resides on the secondary storage;

8   reading the data from the file in the secondary storage into a memory accessible to

9 the application program; and

10   providing data from the file in the memory to the application program before the

11 entire file has been read from the secondary storage into the memory.

1   38.   The article of manufacture of claim 37, further comprising:

2   storing in the primary storage a partial version of at least one released file,

3 wherein the partial version includes a portion of the data in at least one released file.

1   39.   The article of manufacture of claim 38, wherein the partial version of the

2   file comprises a first number of bytes of the released file that is less than all the bytes in

3   the file, further comprising:

4   receiving user input indicating the first number of bytes included in the partial

5   version of the file.

1   40.   The article of manufacture of claim 38, wherein an attribute is provided

2   for each file indicating whether the partial version of the file is maintained in the primary

3   storage after the file is released, wherein the partial version is only maintained in the

4   primary storage for those released files having the attribute indicating that the partial

5   version is to be maintained.

1   41.   The article of manufacture of claim 38, wherein the requested data is in the

2   partial version, further comprising:

3   reading the data from the partial version of the file in the primary storage into the

4   memory to make available to the application program.

1   42.   The article of manufacture of claim 41, further comprising:

2   receiving a further request from the application program for data in the file that is

3   not included in the partial version of the file; and

4   determining a location in the file in the secondary storage of the further requested

5   data, wherein reading the data from the file in the secondary storage comprises reading

6   data from the determined location in the file in the secondary storage into the memory to

7   make available to the application program.

1   43.   The article of manufacture of claim 42, wherein data is read from the file

2   in the secondary storage in a fixed byte length window, and wherein reading the further

3 requested data from the determined location in the file in the secondary storage further

4 comprises:

5   reading enough data to fill the fixed length byte window by reading data from the

6 partial version and the further requested data read from the determined location in the

7 secondary storage, wherein the window of the data is transferred to the memory.

1   44.   The article of manufacture of claim 37, wherein data is read from the file

2 in the secondary storage in a fixed byte length window.

1   45.   The article of manufacture of claim 44, wherein multiple windows of data

2 are read from the file in the secondary storage into the memory in response to the data

3 request.

1   46.   The article of manufacture of claim 44, further comprising:

2   receiving a request for data from the file that follows the data transferred into the

3 memory; and

4   reading at least one window of further data having the fixed byte length from the

5 file in the secondary storage into the memory to make available to the application

6 program.

1   47.   The article of manufacture of claim 44, wherein reading the data into the

2 window further comprises:

3   storing the data read into the window in the memory; and

4   making the data from the window read into the memory available to the

5 application program before the entire window of data is read into the memory.

1   48.   The article of manufacture of claim 44, further comprising:

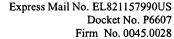2   receiving user input indicating a size of the fixed byte length of the window.

1   49.   The article of manufacture of claim 37, wherein a stage attribute is

2   associated with each file indicating whether to stage the file transferred from the

3   secondary storage to the memory into the primary storage, comprising:

4   staging data to the primary storage from the memory that was transferred from the

5   secondary storage only if the stage attribute indicates that data from the file is to be

6   staged.

1   50.   The article of manufacture of claim 37, wherein the files include

2   component files of groups that are accessed by the application program, further

3   comprising:

4   storing in the primary storage a partial version of each released component file

5   included in one of the groups accessed by the application program, wherein the partial

6   version includes a portion of the released component file.

1   51.   The article of manufacture of claim 50, wherein the component files are

2   capable of being stored in both the primary and secondary storages.

1   52.   The article of manufacture of claim 50, wherein component files capable

2   of being released and replaced by the partial version are included in groups that are open

3   to the application program.

1   53.   The article of manufacture of claim 50, wherein the application program

2   comprises a database program and wherein the groups of component files comprise

3   tablespaces that the database program has opened, and wherein the component files of

4   one opened tablespace are eligible for release according to the criteria.

1   54.   The article of manufacture of claim 53, wherein at least one component

2   file of one tablespace is stored in the primary storage and the partial version of at least

3   one released component file of the tablespace is stored in the primary storage.